

# Comparisons of Job Characteristics

**Focus Occupation:** [Computer Hardware Engineers \(17-2061\)](#)

**Associated Occupation:** [Computer Software Engineers, Systems Software \(15-1032\)](#)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

## Knowledge

Similarity of Focus Occupation to Associated Occupation: 95

**Focus Occupation:** Computer Hardware Engineers (17-2061)

**Associated Occupation:** Computer Software Engineers, Systems Software (15-1032)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Computers and Electronics	8.4	23.1	22.7	0 Current knowledge level may be sufficient
Engineering and Technology	5.7	14.6	17.2	> Current knowledge level is likely sufficient
Customer and Personal Service	11.3	11.8	11.0	0 Current knowledge level may be sufficient
Design	5.2	10.9	11.7	0 Current knowledge level may be sufficient
Telecommunications	3.9	8.3	11.6	>> Current knowledge level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Skills

Similarity of Focus Occupation to Associated Occupation: 77

**Focus Occupation:** Computer Hardware Engineers (17-2061)

**Associated Occupation:** Computer Software Engineers, Systems Software (15-1032)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Programming	2.2	12.6	6.1	<< Extensive development of skills in this area may be required
Operations Analysis	5.0	12.0	10.5	< A higher skill level may be required
Systems Evaluation	6.4	10.7	9.8	0 Current skill level may be sufficient
Systems Analysis	6.5	10.2	9.7	0 Current skill level may be sufficient
Technology Design	2.6	8.1	4.5	<< Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 98			
Focus Occupation: Computer Hardware Engineers (17-2061) Associated Occupation: Computer Software Engineers, Systems Software (15-1032)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Oral Comprehension	12.5	14.5	15.3	0	Current ability level may be sufficient
Written Comprehension	11.0	13.8	14.2	0	Current ability level may be sufficient
Deductive Reasoning	10.6	12.6	14.5	>	Current ability level is likely sufficient
Written Expression	9.8	12.3	12.8	0	Current ability level may be sufficient
Inductive Reasoning	10.2	11.8	13.6	>	Current ability level is likely sufficient
Information Ordering	9.9	11.4	11.4	0	Current ability level may be sufficient
Mathematical Reasoning	6.3	9.8	7.4	<<	Extensive improvement in abilities may be required
Originality	7.6	9.3	9.3	0	Current ability level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 93
<b>Focus Occupation: Computer Hardware Engineers (17-2061)</b> <b>Associated Occupation: Computer Software Engineers, Systems Software (15-1032)</b>		
Work Activities	Exclusivity of Activity	
Advise clients regarding engineering problems	67	
Analyze technical data, designs, or preliminary specifications	47	
Communicate technical information	4	
Conduct performance testing	66	
Design computer hardware or software interface	87	
Design control systems	78	
Design electronic equipment	74	
Design hardware or software systems	92	
Develop computer performance standards	87	
Develop or maintain databases	30	
Develop tables depicting data	33	
Evaluate computer system user requests or requirements	81	
Evaluate prototype computer software systems	89	
Follow data security procedures	77	
Follow data storage procedures	75	
Follow statistical process control procedures	73	

Make presentations	13
Prepare technical reports or related documentation	22
Provide technical computer training	82
Read blueprints	10
Read manufacturing outlines for electronic products	84
Read schematics	34
Read technical drawings	7
Recommend purchase, repair, or modification of equipment	82
Resolve engineering or science problems	46
Test computer programs or systems	78
Understand detailed electronic design specifications	70
Understand engineering data or reports	48
Use computer networking technology	81
Use computer programming language	82
Use computers to enter, access or retrieve data	3
Use knowledge of mainframe computers	78
Use project management techniques	47
Use scientific research methodology	21
Use spreadsheet software	18

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Tools and Technologies that Both Occupations Have in Common

Similarity of Focus  
Occupation to Associated  
Occupation: 71

**Focus Occupation: Computer Hardware Engineers (17-2061)**

**Associated Occupation: Computer Software Engineers, Systems Software (15-1032)**

Tools and Technologies	Exclusivity
Business function specific software	1
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Electronic and communication measuring and testing instruments	14
Industry specific software	1
Network applications software	1
Operating environment software	12

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.